

# **Just a Matter of Prospect (Theory)? - The Ecological Rationality of the Traditional Accounting Principles<sup>1</sup>**

Eduard Braun  
Institute of Management and Economics  
Clausthal University of Technology  
Julius-Albert Straße 2  
38678 Clausthal-Zellerfeld  
Germany  
Tel.: +49 (5323) 72 – 7636  
Fax: +49 (5323) 72 – 7639  
[eduard.braun@tu-clausthal.de](mailto:eduard.braun@tu-clausthal.de)

## **Abstract:**

The principles characterizing the traditional revenue-expense approach to accounting have never been “invented.” They are an institution that is the result of social evolution, not of human design. Therefore, the efforts to defend them against the balance sheet approach endorsed by standard-setters have encountered severe difficulties. The latter is based on a coherent model of the economy, namely neoclassical economics. This paper argues that a solid basis for explaining the rationale of the traditional accounting principles can be found in behavioral economics, especially in Prospect Theory. If one combines this result with a market process view of the economy, the revenue-expense approach turns out to be congenial to the organization of the market economy.

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## **1. Introduction**

Since the early 1970s, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Committee (IASC), which later became the International Accounting Standards Board (IASB), have gradually been trying to develop and enforce accounting standards that contrast strongly with the historically evolved accounting principles (Ijiri 2005: 261). For many and diverse reasons, the displacement of the old principles has been criticized severely. In a series of recent papers, Dickhaut et al. (2010), Dickhaut et al.

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(2009), and Dickhaut (2009) try to provide new arguments against the abolishment of these principles in favor of those advocated by the two main accounting standard-setters. They show that the most important traditional accounting principles, namely conservatism and revenue realization, are compatible with the results of neuroscience. These culturally evolved principles, they argue, must have a deeper meaning as they can be rediscovered in the logic of the human brain.

The present paper substantiates this claim. Indeed, there is more behind the traditional accounting principles than mere tradition. However, the case made by the late Dickhaut and his co-authors seems to be a little far-fetched. For example, they assume links between the unconscious counting behavior of apes and the logic of double-entry bookkeeping. Behavioral economics provides a more down-to-earth playing field than neuroscience for those who look for instances where the logic of accounting principles pops up in relevant contexts.

The main thesis of this paper is that financial accounting, if conducted according to the traditional accounting principles, conforms to established results of behavioral economics.

The argument proceeds in two steps. First, in chapter 3, a relationship between the traditional principles and behavioral economics is established. The standard-setters dismiss the traditional accounting principles because they cannot be reconciled with the normative assumptions of neoclassical economics. It is shown that even those schools of thought which usually are opposed to modern neoclassicism have contributed to this dismissal (3.1).

However, the traditional accounting principles do conform to the results of behavioral economics. They are in line with human behavior as found in numerous laboratory and field experiments. This paper concentrates on Prospect Theory, an experimentally cemented theory. It provides a background against which the principles can be interpreted in a new way. The traditional revenue-expense framework can be reconciled with this theory whereas the balance sheet approach endorsed by the standard-setters cannot be so (3.2). The sunk cost argument that is often brought up against the traditional way of accounting is also weakened by Prospect Theory and subsequent experiments. People do not forget about sunk costs, as neoclassical decision theory assumes, but keep them in mind. The same is done in classical accounting. Historical costs are not forgotten but kept track of in the balance sheet (3.3). Furthermore, the asymmetrical value function developed in Prospect Theory is consistent with the accounting principle of conservatism (3.4).

Apparently, the traditional accounting principles align the behavior of enterprises to the behavior of human beings. As long as businesses practice accounting according to traditional principles they determine performance figures in a way that conforms to human behavior as

revealed in numerous experiments. In a second step, chapter 4 explains why these principles, although conforming to modes of behavior that violate rationality as postulated by neoclassical economics, have nonetheless won through in the evolution of social institutions. Based on the research conducted by Vernon Smith, it is demonstrated that the behavioral assumptions of neoclassical economics are not necessary for a market economy to find its equilibrium state; under certain conditions, they might even be detrimental for the coordination of the market actors (4.1). That the traditional accounting rules have evolved might therefore be a signal for their *ecological* rationality. As institutions that developed as a result of human action, but not human design, they probably follow a rationale that is not known or understood by anybody of their applicants (4.2). It seems probable that the traditional accounting principles rest upon rules of conduct which ensured the survival of our ancestors and which therefore might also increase the probability of surviving on the market. Furthermore, the fact that the traditional accounting principles are not in line with neoclassical economics makes them all the more reasonable from a market process point of view. The coordination function of the market does not necessitate the participants to have complete or perfect, but only *private* information in terms of Hayek (1945) (4.3). The paper starts out, in chapter 2, with a short presentation of the two visions of accounting that are relevant for the following discussion: the traditional view and the one endorsed by the standard-setters.

## **2. Two approaches to the function of accounting**

Financial accounting, as was argued by Werner Sombart, Max Weber, Ludwig von Mises, and Joseph Schumpeter, is a central – if not the defining – institution of the market economy or capitalism (Waymire and Basu 2007: 3). Accordingly, the roots of accounting, as it is known today, go back to medieval Italy where, in 1494, Luca Pacioli wrote the first complete description of double-entry bookkeeping as practiced in the prospering Italian cities at his time (Hatfield 1965: 6 ff; Zan 1994: 263).

In the last 150 years, the way this ancient and essential institution is approached by academics and politics has changed fundamentally. Whereas in earlier times the role of accounting research and commercial legislation was to describe and establish what actual sound accounting practices were, without actively interfering, the trend is towards the enforcement of accounting principles that run contrary to age-old traditions. In the 19<sup>th</sup> century, this trend showed itself markedly in the newly founded German Reich where, in 1870, the German Commercial Law abolished the established historical cost rule and instead imposed what

today would be called fair value accounting. After having been realized that this step severely increased the exuberance and the frauds that preceded the crisis of 1873, the law was changed again and the traditional rules came to their own once more (Braun 2014). During the last forty years, the trend towards the authoritative establishment of mandatory accounting principles has gathered pace (Biondi 2011: 2). Especially since the foundation of the FASB and the IASC the traditional principles are shrinking in importance and are, bit by bit, replaced by designed principles.

Although there are a lot of detailed changes that deserve closer treatment, this paper focuses on the big picture, that is, on the fundamental difference between the traditional accounting principles and the ones that are designed by the two big standard-setters. This difference shows up in the way the very function of accounting is interpreted. There are basically two alternative approaches (Dichev 2008: 454). The *traditional* accounting rules evolved in a way that made them fit to determine the *profit* of the bookkeeping entity. First and foremost, Eugen Schmalenbach ([1919] 1959; see also Dichev 2008: 455) worked out this relation. He argued that the one central function of accounting, if accomplished according to the traditional *historical cost* principle, is to determine the success of the company by contrasting incurred expenses and collected revenues, and he concluded that, therefore, the income statement must be seen as the decisive document in accounting (Schmalenbach [1919] 1959: 32). The balance sheet, on the other hand, where the assets and liabilities are stated, only has a subordinate function. It has become necessary because most enterprises, especially since the industrial revolution, are going concerns, not one-shot undertakings with a foreseeable date of liquidation. For going concerns which pay out profits to their owners on a regular basis, and not only at the time of liquidation, it is necessary to keep away from the income statement all transactions that have not yet been completed, that is, for which profit cannot yet be determined. This includes most notably current expenses that are supposed to give rise to revenues in the future and current revenues that imply expenses in the future. Thus the balance sheet, as interpreted by Schmalenbach (1959: 55), serves as a store for the income statement. It contains, to give a short example, the historical expenses that have been made for a durable machine. These only enter the income statement over the years, as depreciations, while the machine wears off. This traditional view of accounting will be referred to as the *revenue-expense approach*.

The standard setters, in contrast, adhere to the so-called *balance sheet approach* (Perry and Nölke 2006: 563), also called *asset-liability approach*. The main purpose of accounting, according to this view, is to provide useful and relevant information to the capital market, i.e.,

mainly to potential investors (Barth 2006: 272; Hitz 2007: 327). Therefore, in the view of accounting that the standard-setters are propagating and enforcing, the balance sheet is the crucial document. It contains – or is supposed to contain – useful information concerning the financial position of the company. It should ideally provide the “fair value” of all assets and liabilities of the respective company. Fair value accounting thus is an outflow of the more general balance sheet approach (Hitz 2007: 328). The fair value of assets and liabilities is supposed to provide information on the *present value* of the respective items. According to IAS 36 (BCZ 11 (a)), “fair value reflects the market’s expectation of the present value of the future cash flows.” IFRS 13 adds that fair value is the “price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date” (Cairns 2014: 131). In short, “fair value” basically means the *present value* of the cash flows that the items in the balance sheet are going to produce and for which the price in an efficient market is the best proxy (Barlev and Haddad 2003: 397). Should market prices not exhibit sufficient quality or not be available, standard-setters require using (modified) market prices of comparable items, where comparability naturally refers to the cash flow profile. When marking-to-market should happen to be impossible, as a technique of last resort the fair value is mandated to be estimated using internal estimates and calculations (marking-to-model) (Hitz 2007: 326 f.). To sum up, the balance-sheet is not interpreted as a store for the income statements, but as a device that contains forecasts of future cash-flows. As for the standard-setters the main purpose of accounting is to inform the capital market, the old revenue-expense view is rejected. A balance sheet based on historical costs does not provide a fair picture of the “real financial position” of a firm (Barlev and Haddad 2003: 384-387). Further, according to the balance sheet approach, income only plays a derived role (Dichev 2008: 454). It is the difference between the present value of the company’s net assets – as determined by the fair value balance sheet – at the beginning of the period and their value at the end of the period (Barth 2006: 272; Rayman 2007: 217). So the balance sheet is no longer the “servant” of the income statement but, rather conversely, the income statement is only a correlate of the balance sheet.

### **3. Prospect Theory and its relationship to accounting principles**

#### **3.1 The neoclassical roots of the current standards**

Economics and accounting have cross-fertilized each other for a long time. Originally, it was economics that took over many important concepts, like ‘capital,’ ‘costs,’ and ‘revenues,’ from accounting practices (Klamer and McCloskey 1992; Chiapello 2008). However, roughly

since the 1960's, the direction of influence has reversed (Dillard 2008). Concerning its method, modern accounting research is oriented towards the positive research program which was advanced by Milton Friedman and which put its mark on modern economics (Watts and Zimmerman 1986). Unsurprisingly, positive accounting research originated mainly from Chicago where Friedman and his adherents were working (Christenson, 1983; Williams, 2003). With the rise of the new method, also crucial concepts like the efficient market hypothesis and Walrasian general equilibrium entered accounting research from economics, mostly via financial economics (Williams E. et al. 1980: 133-135).

It has been noted many times that the balance sheet approach to accounting, and especially the concept of fair value, are based on neoclassical economics (Hitz 2007: 327, 332). Especially John Hicks' (1946) discussion of income is used as a reference point by standard-setters (Bromwich et al. 2010: 350). They explicitly aim at John Hicks' income concept N° 1 (Barth 2006: 280) which is often also called "economic income" (Solomons 1961: 375 f.). Hicksian Income N° 1 is

the maximum amount which can be spent during a period if there is to be an expectation of maintaining intact the capital value of prospective receipts (in money terms) (Hicks 1946: 173).

This concept of income clearly gives priority to the balance sheet and the valuation of assets and liabilities. According to Bromwich et al. (2010: 351; see also Solomons 1961: 376), Hicksian Income N° 1 is the difference between the firm value (net present value of a firm's future cash flows) at the end of a period and the firm value at the beginning of the period plus the dividends distributed between those dates. Thus income is only a derivative of the determination of the present value of the firm's assets and liabilities.<sup>2</sup>

It should be clear, however, that neoclassical concepts and theories, methodologically following the paradigmatic essay of Friedman (1953), do not and are not supposed to rest upon realistic assumptions. If one promotes Hicksian Income N° 1 as the "correct" income concept, as standard-setters do, one actually has to assume perfect competition, perfect information, and rational actors, to name the most relevant ones. In other words, it must be assumed that the market is efficient and actually in an equilibrium situation (Hitz 2007: 332). Otherwise, the present value of the firm's assets and liabilities could not be determined – nor even defined – in a meaningful way, which is admitted even by adherents of the fair-value

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<sup>2</sup> It must be noted that John Hicks himself was not calling for the use of this income concept in accounting. As shown in detail by Brief (1982), he actually was in favor of a valuation according to historical cost.

program (Barlev and Haddad 2003: 405 f.). Therefore, in adopting the neoclassical framework, standard-setters also accept the latter's focus on equilibrium analysis.

It is interesting to note at this point that the demand for the balance sheet approach and fair value, when it comes to accounting, is shared even by schools of thought which otherwise decidedly criticize the equilibrium approach of neoclassical theory. This might explain why there has been little fundamental criticism of the new approach to accounting from academic economics: even the opponents of neoclassic theory are quite neoclassical so far as accounting is concerned.

Ludwig von Mises, who was one of the central figures of Austrian Economics in the 20<sup>th</sup> century and who vehemently stressed the importance of the market process as against the neoclassical restriction to equilibrium (Kirzner 1997: 61 f.), held a rather neoclassical view of accounting. He rejected the old business customs and the traditional provisions of commercial law because they "have brought about a deviation from sound principles of accounting" (Mises 1966: 213). Instead, he advocates an accounting income concept which pretty much resembles Hicksian Income N° 1:

In balance sheets and in profit-and-loss statements the result of past action becomes visible as the difference between the money equivalent of funds owned (total assets minus total liabilities) at the beginning and at the end of the period reported, and as the difference between the money equivalent of costs incurred and gross proceeds earned. In such statements it is necessary to enter the estimated money equivalent of all assets and liabilities other than cash. These items should be appraised according to the prices at which they could probably be sold in the future or, as is especially the case with equipment for production processes, in reference to the prices to be expected in the sale of merchandise manufactured with their aid (Mises 1966: 212 f.).

In this passage, obviously both the balance sheet approach and the fair value concept shine through. Mises point of view is especially important because of his influence on Raymond Chambers. Chambers is sometimes referred to as the father of fair value – although this probably is an exaggeration (Gaffikin 2012; Barlev and Haddad 2003: 390). In any case, he was a very influential accounting theorist in the 20<sup>th</sup> century strongly putting emphasis on the rationale of fair value accounting. His magnum opus, Chambers (1966), not only quotes Mises more often than any other economist, but reminds of Mises both because of its deductive approach and its multidisciplinary. Consequently, Chambers's (1966: 112-115) discussion of income as the change of the value of net assets between two points of time is clearly based on Mises (1966: 212-214).

Ronald Coase might be mentioned as another famous critic of neoclassical theory – and especially of its extensive use of unrealistic assumptions (Medema 2008: 432-435) – who was nonetheless quite neoclassical when it came to accounting. In Coase (1990: esp. 8) he explains how he and his young colleagues at the London School of Economics in the 1930s were fighting against accountants in order to establish their new opportunity cost concept in accounting. In accounting, of course, the opportunity cost of an asset is its exit value, that is, the price for which it could be sold on the market – and thus its fair value (Ronen 2008: 186; see also Buchanan 1999: 26-29).

To sum up, the standard-setter's vision of accounting is based upon neoclassical economics. What is more, even other notable schools of economics do not oppose this vision so that it is no wonder that accounting has been a victim of economic – better: neoclassical – imperialism. There was no elaborated alternative framework available.

### **3.2 Prospect Theory and the Balance Sheet Approach**

The assumptions of neoclassical economics have been attacked since they have been formulated for the first time. In the second half of the 20<sup>th</sup> century they have increasingly come under fire from the then new field of behavioral economics. Psychologists and economists showed that real people making actual decisions do not choose in accordance with rational choice theory. One of the most notable contributions in this regard, and one that is especially relevant for our discussion of accounting principles, was Prospect Theory (Kahneman and Tversky 1979). It provided conclusive evidence that the majority of people does not act according to the Expected Utility Theory. In their classical paper, Kahneman and Tversky argue that human valuations do not relate to final states of wealth, as in Expected Utility Theory, but to changes in wealth.

[P]eople normally perceive outcomes as gains and losses, rather than as final states of wealth or welfare. Gains and losses, of course, are defined relative to some neutral reference point. The reference point usually corresponds to the current asset position, in which case gains and losses coincide with the actual amounts that are received or paid (Kahneman and Tversky 1979: 274).

These “departures from expected utility theory,” they (1979: 277) add, must lead to “normatively unacceptable consequences, such as inconsistencies, intransitivities, and violations of dominance.”

From the way they formulated their point, however, something different can be also inferred. The balance sheet approach to accounting, whereas it is compatible with neoclassical



economics, seems to run contrary to the empirically derived Prospect Theory. For individuals, final states of wealth are not “carriers of value” (Kahneman and Tversky 1979: 277). Human behavior, in other words, is not consistent with Hicksian Income. The latter interrelates two – independently valuated – states of wealth (i.e., the net values of all assets), the difference being income. Apparently, this way of calculating income is different from what Prospect Theory shows for actual human decisions. According to this, the asset position at the beginning serves as a reference point. Gains and losses are “the amounts of money that are obtained or paid” (Kahnemann and Tversky 1979: 286), not the difference between the current asset position and a future one.

Rather, Prospect Theory is compatible with the traditional revenue-expense approach to accounting. By calculating with historical cost, this approach creates a reference point in the balance sheet: the amount of money that has already been invested in the company. This amount is not valuated anew every period but, depreciations aside, stays the same. Income is created when, starting from this amount of wealth in the balance sheet, the money inflows are larger than the outflows. Thus the comparison between Prospect Theory and the revenue-expense approach tells us that the latter might actually be an adaptation to the way humans evaluate the gains and losses of their actions. It could be interpreted as a translation of human behavior to the institution of economic calculation.

### **3.3 The role of the endowment effect and sunk costs**

Richard Thaler (1980) elaborated on Prospect Theory in order to demonstrate further failures of neoclassic economic theory to describe and predict behavior. Among other things, he built upon an old result of social psychology that Kahneman and Tversky had integrated into their theory. It had been shown that human decision-makers weigh losses higher than gains. “The aggravation that one experiences in losing a sum of money appears to be greater than the pleasure associated with gaining the same amount” (Kahneman and Tversky 1979: 279). Thaler’s (1980) subsequent discussion of sunk costs and the endowment effect backs the argument of the last section.

According to economic theory, all costs are opportunity costs. The cost of any decision is supposed to be the highest valued opportunity forgone. The out-of-pocket costs, i.e. direct outlays of cash, do not have any independent meaning as they are interpreted as opportunity costs as well – the highest valued opportunity that would have been obtainable with the cash given away. As indicated in section 3.1, the depiction of opportunity costs in the balance sheet is a more or less explicit ideal of the fair value program. Thaler (1980: 44), however, points

out that, in real life, decisions are influenced by the *endowment effect*. It makes a difference to people whether they only need to choose between two options, e.g. between a bottle of wine and \$5, or whether they *actively* have to give away one option, e.g. when they have to pay \$5 for a bottle. The fact that they are “endowed” with the \$5 makes them more reluctant to choose the bottle of wine although, from the standpoint of economic theory, the decisions seem to be the same. Thaler (1980: 44) argues that this observation can be explained by means of Prospect Theory. Starting from the reference point, that is, from the actor’s initial endowment with assets, out-of-pocket costs are viewed as losses (and therefore felt intensely) whereas opportunity costs are viewed as foregone gains (and therefore felt more mildly). This explains why out-of-pocket costs loom larger than opportunity costs.

Obviously, “out-of-pocket costs” is just a different name for “historical costs.” Historical costs in the balance sheet document what has been invested in the firm so far. They could also be called the “endowment” of the firm. So, although the endowment *should* play no role in decision-making, according to neoclassical theory, they actually *are* important in real-life decisions. And the traditional accounting principles do nothing else than to accept this empirical fact and translate it to the firm level.

Thaler’s (1980) discussion of sunk costs underlines this parallel. He explicitly states:

Economic Theory implies that only incremental costs and benefits should affect decisions. *Historical costs should be irrelevant* (Thaler 1980: 47, emphasis changed).

Based on the observation of human behavior, however, he suggests that economic theory is not descriptive in this point. Instead, he offers an alternative hypothesis. Costs that have been incurred in the past are not irrelevant to the present.

[P]aying for the right to use a good or service will increase the rate at which the good will be utilized, *ceteris paribus*. This hypothesis will be referred to as the sunk cost effect (Thaler 1980: 47, emphasis erased).

Interestingly, Thaler (1980) draws on metaphors taken from accounting when he explains this effect. Sunk costs, he says, are not felt as pain at the time when they are incurred. Instead they are memorized in the “individual’s psychic account system” until the moment comes when the corresponding revenues accrue (Thaler 1980: 48; Thaler 1999: 190-192 reports supporting experimental evidence). Only then the net gain or net pain is felt. He uses the example of a family who pays \$40 for baseball tickets. He argues that no pain or pleasure will be felt at the moment of purchase. Only when the day of the game arrives will there be a comparison

between the \$40 and the pleasure derived from watching the game with the family feeling “net pleasure” (Thaler 1980: 49). The similarities between his findings and traditional accounting are so apparent that Thaler himself cannot but recognize them.

### **3.4 Prospect Theory and Conservatism**

Basu (2009: 15) and Dickhaut et al. (2010: 243), in their discussion of the relevance of Neuroscience for accounting theory, already shortly highlight another aspect of Prospect Theory. They state that the asymmetry between gains and losses which shows up in human behavior strongly reminds of the accounting principle of conservatism. Conservatism, the principle according to which the accountant anticipates no profits but all losses, goes back at least to the 15<sup>th</sup> century (Basu 1997: 7 f.) and has easily been integrated in revenue-expense accounting. Its best-known outflow is the valuation according to ‘cost or market, whichever is lower.’ Whereas critics of conservatism have stressed its “potential to garble earnings due to the asymmetry in the treatment of revenues and expenses”, and thus its irrational character, its supporters have often claimed that conservatism in accounting is simply a matter of prudence (Harris et al. 1994: 191). It saves companies from distributing too high dividends.

Yet, it seems probable that conservatism is more than a mere *ad hoc* prudence device. As Prospect Theory shows, humans generally evaluate gains and losses differently. Losses loom larger than gains, and therefore it seems sensible to treat them asymmetrically. The rule of conservatism reflects this asymmetry. In accordance with the fact that losses are felt intensively, conservatism demands that losses are recognized in the income statement as soon as they are anticipated. In other words, impending losses loom larger in the income statement than expected profits. Because of the accounting principle of conservatism, the company “perceives” gains and losses in a similar way ordinary humans do.

## **4. The ecological rationality of the traditional accounting principles**

### **4.1 Ecological and constructivist rationality**

So far, the parallel between the traditional way of practicing accounting and the way humans behave has been stressed. Apparently, the age-old accounting principles are closer to behavioral economics than to neoclassical economics. This result seems a little awkward. Many competent commentators regard accounting as a central institution of the market economy, and the modelling of the economic laws of the market is the main purpose of neoclassical economics, not of behavioral economics, at least not to the same extent. A major aim of economists in the latter tradition even seems to be the critique of the unrealistic

assumptions their neoclassic colleagues have to make in order to be able to deduce these laws (Smith, V. 2005: 144). So why do the traditional accounting rules nonetheless not conform to the neoclassical assumptions but to the behavior as described by behavioral economics?

The following argument can be divided in two parts. First of all, it is argued that the working of the market is not captured by basing the modelling on the unrealistic assumptions of neoclassic theory. Therefore, also the rationale of accounting as part of the market process cannot be well understood by neoclassical theorists, both in economics and accounting (section 4.1). The second part of the argument is concerned with the question as to why the traditional accounting principles have turned out the way they have. Apparently, they historically won through in competition with other principles because they better guaranteed the survival of the applying firms (section 4.2). Section 4.3 finally combines both parts of the argument and indicates fruitful research directions for the future.

Vernon Smith's research program, outlined in his Nobel Lecture and later extended to a book (Smith V. 2003; 2008), provides an appropriate starting point for the following discussion. He distinguishes two forms of rationality. The first form is the conscious form of rationality that he calls *constructivist rationality*. It applies when a result is purposefully brought about by the action of an agent or an acting body. Behind constructivist rationality is the idea that "all worthwhile institutions were and should be created by conscious deductive processes of human reason" (Smith 2008: 26).

The second form is *ecological rationality*. Smith (2008) argues that, sometimes, and especially in social contexts, the rationality of an outcome is not the consequence of a rational plan, but the unintended outcome of decentralized actions and interactions of unsuspecting individuals. In these cases, the rationality is due to the environment where the decisions are made and where they unfold their consequences.

The most characteristic example of ecological rationality in economics can be found in Bernard Mandeville's *Fable of the Bees*. Every bee in Mandeville's hive is motivated by vices like prodigality, luxury, fickleness, envy, and vanity, to name just a few. Nonetheless, the hive thrives as every vice is the source of well-being for the other bees. This idea culminates in the well-known line:

The worst of all the Multitude  
Did something for the Common Good.

Mandeville's bee-society which, of course, is a metaphor for the developing market economy of the early 18<sup>th</sup> century, prospers although, first, no central authority directs and coordinates

the actions of the particular bees and, second, the bees themselves do not think about the common good but are driven by their egoistic vices. The “rational” result depends, instead, on the environment. For Vernon Smith (2008: 16 ff.), it is clear that it is the implementation and enforcement of property rights which make the coordination of individual actions without a central coordinator possible.

The idea of ecological rationality found its most famous expression in Adam Smith’s *Invisible Hand*: It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest (Book I, Ch. 2). Every individual is

led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. *By pursuing his own interest he frequently promotes that of society more effectually than when he really intends to promote it* (Book IV, Ch. 2).

So the rationality of the Invisible Hand is not an intended rationality. The promotion of the interest of society is rather an unintended outcome of actions that aim at completely different goals. Vernon Smith (2008: 18, emphasis by Smith) summarizes the key proposition of the Scottish philosophers the following way: “To do good for others does *not require* deliberate action to further the perceived interest of others.”

In numerous market experiments, Vernon Smith has shown that the rational outcome of market interaction indeed does not presuppose individual rationality as assumed by the constructivist models of neoclassical economics. Participants who neither understand the general equilibrium model nor have any clear idea of what their counterparts want or do nonetheless maximize their profits given the behavior of all others (Smith V. 2005: 137). Smith (2005: 137) even reports that the participants themselves “deny that there is any kind of quantitative model that could predict their market price and exchange volume, or that they were able to maximize their profits.” Vernon Smith (2005: 136, 140) also points at the fact that “irrational” agents, that is agents who are not rational in the sense in which game-theorist have modeled it, achieve better outcomes in two-person anonymous trust interactions than rational agents would.

The ecological rationality at the heart of the working of the market economy is not at all taken into account by standard economics. That its assumptions are not descriptive is an old critique; Vernon Smith’s experiments made it clear that they are not even necessary for the market to equilibrate. Indeed it seems that there are circumstances where they lead to worse results than presumedly irrational agents do. These phenomena, Smith (2005: 136) states, are

not “constructively explicable with the tools of standard theory.” In his eyes, economics thus is still far away from an adequate explanation of its research object:

In this sense our bounded rationality as economic theorists is far more constraining on economic science, than the bounded rationality of privately informed agents is constraining on their ability to maximize the gains from exchange in markets (V. Smith 2005: 137).

## **4.2 Accounting and its principles as an evolved social institution**

Ecological rationality is not restricted to the working of the market. Rather it can be applied to many social-grown institutions. Vernon Smith, although clearly realizing this field of application for his concept, did not go beyond the examination of different market environments (continuous double auction, sealed bid, posted offer, and others) and their influence on market results (V. Smith 2005: 143).

Carl Menger and Friedrich von Hayek had resumed the Scottish non-constructivist view on social phenomena and did not limit it to plain market processes. They applied it more generally to the evolution of social institutions. Menger (1892), most notably, explained the origin of money as a result of organic and unconscious social processes. Menger (1985: 130) also mentions language, law, and states as social institutions which are the “unintended product of historical development.” Based on Menger’s groundwork, Friedrich von Hayek elaborated on this kind of social evolution. He spoke of institutions and rules of conduct that are “the results of human action, but not of human design” (Hayek 1967a). He laid emphasis on the argument that it is not a condition for the effectiveness of such institutions and rules that their rationale is understood by any one of its applicants (Hayek 1978: 7; 1967b: 43 ff.). The distinction between the constructivist and the ecological rationality of social institutions can easily be applied to the formation of accounting and its principles. In recent decades, the constructivist approach prevails. In today’s accounting textbooks in the U.S., the history of financial accounting routinely starts in 1934, with the formation of the SEC, and its delegation of accounting standard-setting to private bodies (Waymire and Basu 2007: 4; Sunder 2005: 373). The shift towards legislated written and authoritatively enforced standards gathered pace in the early 1970’s after the FASB Conceptual Framework project was launched. Biondi (2011: 2) even speaks of an “accounting revolution.” Accordingly, accounting researchers “almost exclusively use implicit theories of intentional design to analyze accounting practices, whether imbedded in regulators’ conceptual frameworks or academics’ comparative static analyses” (Waymire and Basu 2007: 1 f.). In other words, the constructivist view is thought to

apply. Accounting principles are seen as a product of conscious deliberations and political decision-making processes. The standard-setters are supposed to be able to rationally design accounting rules.

It is true: especially since the financial crisis broke out in 2007, but already before, a growing amount of critics has bemoaned flaws in the designed accounting standards. Notably the fair value principle has been said to be responsible for greater financial fragility of companies and banks and has been blamed for exacerbating market bubbles (Boyer 2007; Dichev 2008: 466; Yuan and Liu 2011: 18-28). The standard-setters' policies have been criticized severely, and also the fact that the standard-setting process has been delegated to private bodies (Perry and Nölke 2006). The reaction to both the experiences made during the crises and the attacks of the critics was that the standard-setters revised some of their standards (Ojo 2010).

However, the view according to which accounting principles are and should be consciously designed has been challenged by but a few commentators. Sunder (2005: 373) worries:

At the beginning of the 21<sup>st</sup> century, few people seem to be aware of the social norm, convention, or common law approach of the earlier era, and such an approach has hardly any advocates left.

He (2005: 372) argues that the world of accounting did not have less order in the days before authoritative standards were set. There were business and professional norms that had developed over time and that regulated accounting in a more informal way.

That the traditional accounting principles have not been consciously designed, but emerged spontaneously in a process of several centuries, is also argued by Byrne (1965: 107), Huerta de Soto (2012: xxvi-xxix) and Waymire and Basu (2007: 1 f.). To be sure, the argument is not that design and evolution of social norms are mutually exclusive and that, therefore, the traditional accounting principles have never been designed by anyone (Sunder 2005: 375 f.).

At one time, there must have been the first person who actually applied conservatism in accounting. Furthermore, the treatises of some famous writers, like Luca Pacioli or Jacques Savary, and, likewise, important legislative texts, like the French *Code de Commerce* or the Prussian *Allgemeine Landrecht*, influenced accounting practices for centuries. The point is that, throughout the course of history, numerous differing accounting principles have been designed and put to the test, but only few of them stood the test of time and came down to our days. Competition among different accounting principles has eliminated those rules that adversely affected the health of the businesses applying them, so that the principles that won through were best adapted to guarantee the survival of the applying businesses (Byrne 1965:

109; Salin 2010: 58). Competition, in Hayek's (2002) terminology, served as a "discovery procedure" in the area of accounting rules.

From this point of view, the practice of the international standard-setters has to be criticized for two reasons. First, they seem to ignore the historical evidence for the evolutionary dominance of the revenue-expense approach – its ecological rationality – and thus provoke a further painful empirical rebuttal of the balance-sheet principle. Second, in making their view mandatory all over the world, they rule out competition among different accounting systems that could reveal advances in accounting rules.

### **4.3 Is a rational reconstruction possible?**

The institution of accounting and its principles has actually evolved in a very long process. Nobody decided on the question as to which way of record-keeping is the best or most successful one. Instead, social evolution has shown which accounting principles have stood the test of time. However, as a consequence of the nearly exclusive emphasize of constructivist rationality in accounting research, "we understand virtually nothing about how the important institution of accounting evolves spontaneously" (Waymire and Basu 2007: 2). But even though we are not able to determine why exactly accounting norms developed the way they did – as shown above, these norms were not purposefully designed by anyone – we may be able to rationally reconstruct some reasons for their evolution (Smith V. 2003: 470). Of special interest is the question posed at the beginning of this chapter: Why did those accounting principles win through that resemble economic behavior as observed by behavioral economics, and not others which are more compatible with the assumptions of neoclassical economics?

Unfortunately, no precise answer can be given. Social norms, as Sunder (2005: 371) rightly observes, unfortunately "leave nary a footprint in the public record." We can only conjecture that individual behavior which fulfills the assumptions of rational choice theory is not necessarily the behavior which prevails in evolution, neither for humans in the evolution of species nor for companies in the social context of the market economy. A graphical, though probably not the most sensitive illustration can be given if one thinks of professors of game theory, physics, or math. Nobody would deny that what they are doing is a valuable contribution to society, and most would agree that if there are people who can think rationally, one would have to look for them among these professors. But it seems equally clear that the truly inhuman consistency, transitivity, and rationality that these persons might be able to display does not in any way help them to be successful "out in the world," neither in the



jungle nor in the market. It could even be argued that their quest for rationality interferes with their ambitions. Hayek, the champion of ecological rationality, again and again pointed out that conscious rationality only plays a minor part in human actions and decisions, and we should be glad therefore:

If we stopped doing everything for which we do not know the reason, or for which we cannot provide a justification [...] we would probably soon be dead (Hayek 1988: 68).

Individual rationality might be important in some instances, but it is definitely not the only or even the most important factor of success.

Take the example of sunk costs. Most of us know and understand the rationality of the argument as to why sunk costs should not influence our decisions. Nonetheless, all of us have committed and continue to commit the “mistake” of not ignoring past costs in what we do, especially at times when we occasionally forget about the argument. Does this mean that we all are irrational? Couldn’t it be that, for some unknown reason, those of our ancestors who did not ignore sunk costs had an edge over those who presumedly were more rational? If this were the case, the fact that traditional accounting norms imply the use of sunk costs in the form of historical costs might indicate that this rule contains tacit knowledge that we have not yet any clear idea of.

The case seems to be more clear for conservatism. It is not inconceivable at all that, from an evolutionary perspective, it is a prudent code of conduct to lay more stress on the avoidance of pain than on the attainment of pleasure. Needless to say that survival is a *pre-condition* of enjoying pleasure and therefore the more important of the two. An accounting rule which makes the entrepreneur feel losses earlier than profits would likewise induce him to avoid losses more than he would otherwise do. It might be a rule that does not guarantee the short-term maximization of profit, but it might instead enhance the probability of survival in the market.

It goes without saying that this discussion only contains hints and conjectures on why the evolved accounting norms have become what they are. It should have become clear, however, that an argument can be made that they are *ecologically rational*. Although we don’t understand completely how and why they work, we can see that *they actually have worked* and that they won through in competition with other rules. What remains to be done – and this is the major part of the work – is to reconstruct this ecological rationality in more detail. What difference does it make for the market economy according as companies apply the balance-sheet or the revenue-expense view in accounting?

Hayek's (1945) view of the working of the price system might serve as a starting point for the corresponding research program. He argued that neoclassical economics totally misunderstands its rationale. This system *does not presuppose* extraordinary amounts of knowledge or rationality on the part of the market participants, as neoclassical theory assumes. Instead, the price system *generates* knowledge about the relative scarcities in society. Every individual only needs the "knowledge of the particular circumstances of time and place" (Hayek 1945: 521), not more. Thus, private information is the input and public information is the output of the market process.

This view of the market process backs the traditional revenue-expense approach. One could argue that it is not necessary nor even meaningful that the individual balance sheet contains publicly useful information. This kind of information is only generated by the market process and the input of the latter is private information of the circumstances of time and place. And this is exactly what income figures based on historical cost accounting reveal: private and new information. Historical costs inform us about the amount of money that has been paid by *one* particular firm for an asset at *one* point in the past, and the corresponding income figures tell us how much profit this firm has made out of it. *Why* it did so remains its secret. Possibly, nobody else would ever have paid that amount for this particular asset and made this profit. Because of this, the profit thus revealed contains new and private information. It is based on the actual actions of the respective firm, and in its actions, a firm necessarily considers its specific "knowledge of the particular circumstances of time and place." Thus, profit based on historical cost figures in income statements can serve as information input to the market process.

No new information is generated, however, when, as in fair value accounting, the *market value* of an asset is shown in the balance sheet and the increase of the market value in the income statement. To depict the increase of the market value of an asset provides no new information to the market. *It is the result of the market process, that is, of the actions of the other market participants, not an information input of any sort.* From a market process point of view, Hicksian Income N° 1, the ideal of the adherents of the balance-sheet approach, does not provide new information but instead presupposes that the necessary information is already provided by the market.

It can further be argued that other accounting principles, like conservatism, can easily be reconciled with Hayek's view of the price system. The individual market participant's attitude towards risk, losses, and gains, whether "rational" or not, is simply part of the private information that enters the market process. There is no reason why the possibility to

coordinate the plans of the market participants should depend on the anxiety with which they calculate their profit. Conservative plans can be coordinated in the same way as optimistic or realistic ones. The market outcome probably differs, but not its efficiency.

## **5. Conclusion**

What is behind the traditional accounting principles? This paper has proposed a direction for further research on this question. The revenue-expense approach and especially the principles of historical cost and conservatism have been shown to bear a close resemblance to human behavior as demonstrated by Prospect Theory. Whether this is rational or not, people do not ignore sunk costs and they value gains and losses differently. Furthermore, they evaluate the results of their actions as changes relative to a reference point, not as the difference between two individually valuated states of wealth. In addition, it has been demonstrated that it does not necessarily have to be a problem when accounting is conducted according to principles which do not conform to the assumptions of neoclassical economics. In fact, that the revenue-expense approach primarily incorporates *private* information makes it congenial to a market process view of the price system.

The defense of the historically evolved accounting principles and the critique of the balance sheet approach endorsed by the standard-setters do not imply a call for an unconditional return to the former. Nobody knows where the evolution of accounting will lead in the coming decades and which principles will become necessary. However, what is implied is a critique of the standard-setting process as such. The establishment and enforcement of accounting standards nearly all over the world have destroyed the competition among different accounting principles not only on a national, but also on an international level. Ecological rationality has been pushed back as a source of wisdom; instead, constructivist rationality has taken its place. It is to be hoped that the arguments presented in this paper help to allay fears of leaving the development of accounting norms to social evolution and to raise doubts about the necessity for standard-setters to create standards from scratch.

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